

## ABSTRACT

A catalyst layer 2 is formed by conductive particles carrying catalyst particles 5, and a boundary layer is disposed adjacent to the catalyst layer 2 and is positioned between a portion which is easily contacted with an oxygen gas and the catalyst layer. The boundary layer 3 is formed by the conductive particles 4 carrying the catalyst particles 5 and a catalyst-carrying amount in the boundary layer 3 is smaller than a catalyst-carrying amount in the catalyst layer 2. Or a hydrophilic treatment is carried out to the conductive particles 4 of the boundary layer 3 by a hydrophilic material, while the conductive particles 4 in the boundary layer 3 do not carry the catalyst particles 5.